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Products Information 2013
ASTRODESIGN,Inc.
Technical and Product Information

Vol. 1

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Scene of shooting Uncompressed 4K Image Library [VT-7004].

See page 14 for detail.

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Solutions

Shooting
Solutions

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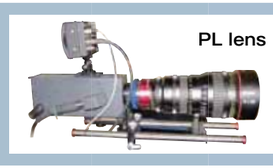
Micro Four Thirds

QFHD camera with CMOS Sensor Real-Time Video Output 4K Camera Head

4K Camera <AH-4413>



Adaptable 4K system for medical,conferencing, digital cinema or monitoring applications

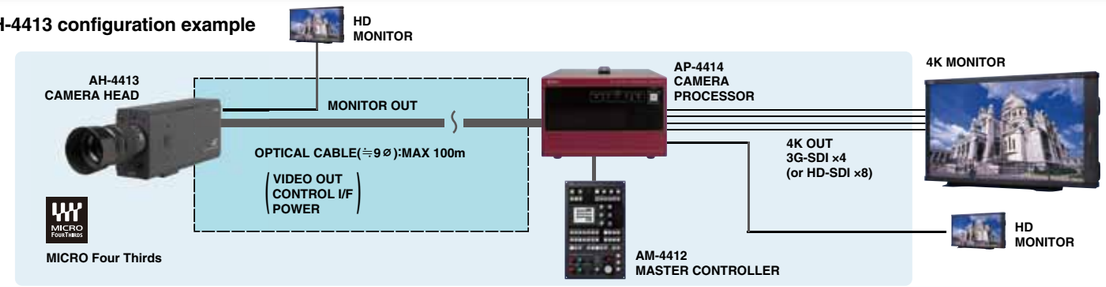
AH-4413

Amplify your imagination, give life to your shots with a camera offering 4K (3840x2160) uncompressed real-time video.
The camera easily fits into existing video workflows used in a variety of applications.

Features >>>

- Equipped with an 8.9-megapixel CMOS sensor, the unit produces 4K (3840x2160) progressive video in real time through four 3G-SDI or eight HD-SDI ports. Ready for applications served by ordinary broadcast or monitoring cameras, it is a good match for existing workflows.
- The compact, lightweight camera head is used with a processor unit and master controller. Two models are available to suit many needs, for connection via regular optical cable (up to 100 m) or LC cable (up to 500 m) between the head and processor unit.
- The Micro Four Thirds lens mount supports a wide range of lenses, and an adapter is available for PL- and F-mount lenses.
- The master controller is intuitive and versatile, featuring a standard UI found in many broadcast cameras. Besides offering powerful lens control (such as iris, focus, and zoom control) and image quality adjustment, the controller can be used with up to four cameras.
- Focusing is easy, thanks to centering, full-screen display, and peaking in HD monitor output from the camera head or processor unit.
- The entire system can be powered by batteries, with the processor unit accepting either AC or 24 V DC input.

■ **AH-4413 configuration example**



The shape of 1920×1080 EVF to come

Industry's first EVF with a full HD LCOS display
<DF-3511-A (Analog Input) / DF-3511-B (SDI Input)>

Full HD—an industry first

<DF-3511-A (Analog Input) / DF-3511-B (SDI Input)>

Features a high-resolution (1920x1080) LCOS display for HD EVF viewing. At last, a viewfinder designed to satisfy professional needs with exceptional usability and accuracy delivering critical focus, shot after shot.

Features >>>

- Full HD (1920x1080) LCOS display
- Two MAG levels
- Multiple marker support
- Dedicated dials for fast, accurate adjustment of brightness, contrast, and peaking
- Stores five user profiles
- Programmable buttons for instant profile switching

Main Functions

Flip screen, full/under display, monochrome, magnification, markers, backlight, tally (LED/display), peaking color, and user profiles

Main Specifications

- Display resolution : 1920x1080
- Source formats : (1) 1920x1080/50i, 59.94i, 60i (2) 1920x1080/29.97p/sF, 30p/sF, 25p/sF (3) 1920x1080/23.98p/sF, 24p/sF (4) 1280x720/50p, 59.94p, 60p (5) 1280x720/25p, 29.97p, 30p (6) 1280x720/23.98p, 24p
- Source signals : HD analog or HD-SDI (two models)
- Adjustment (via dedicated dials) : brightness, contrast, and peaking

Uncompressed RAW Recorder with pristine 4K Real-Time Monitoring a RAW Debayered Contents

Portable 4K Uncompressed Recorder **<HR-7510>**
Best solution for Canon EOS C500 cinema cameras

HR-7510

Meets a broad range of production needs : ●4K×2K RAW 60p ●4K×1K Half RAW 120p ●2K RGB 4:4:4 60p (12-bit) ●2K YC_BC_R 4:2:2 120p
Recording can be controlled by the C500's Rec and Stop operations. Variable frame rate support enables overcranking and undercranking.

Features >>>

- Real-time RAW Processing
  Material being recorded can be monitored in real time during RAW processing. Four 3G-SDI ports can be used with 4K monitors to check preliminary material. Users monitoring shooting can switch between Canon Log Gamma and Rec. 709 to check both shading and color.
- Data Transfer
  Supports fast data transfer, essential in file-based workflows. SAS interface for transferring material, offering transfer speeds nearly equivalent to video dubbing.
- Other Highlights
  (1) Unprecedented compact and light body for a 4K recorder
  (2) Highly reliable SSD technology minimizes risks of mechanical failure
  (3) Dual timecode support: embedded TC, LTC input
  (4) Embedded audio and XLR input
  (5) Built-in 3.5-inch LCD for monitoring results as RAW material is processed
  (6) Simultaneously acquires camera and lens metadata
  (7) Can be battery powered (10 to 32V DC)

■ Ideal for live 4K material from EOS C500 cameras NEW

<HB-7513 Real-time Debayering of 4K material>

For real-time processing and adjustment of live 4K material from Cinema EOS C500 cameras.Enables cameras used in movie, TV show, or commercial production to be used in other scenarios.

HB-7511
Data Transfer Station

Unmatched in performance in a small and flexible package - it meets and exceeds uncompressed recording needs.

2K Uncompressed SSD Recording System ＜HR-7502-A＞

Just One System is all you need for Uncompressed

File Transfer Station ＜IM-1503＞

Transfers data rapidly from the SSD pack to HDD or LTO, maintaining high quality. Native support for DPX and TIFF images and BWF audio files.

ALEXA ARRIRAW Certified

HR-7502-A

Powerful command over files, retaining superb image quality

HR-7502-A was strategically designed to address many lingering issues with other recorders in the market. Among the issues include cost, image quality, complexity, size & weight. Our system only uses best in class SSD technology, you cannot compromise opportunities when the best is in demand. Well suited for Digital Cinema and TV Production, but well adaptable for R&D applications including Industrial and Government.

Features

- 2K/HD uncompressed recorder
- Long recording time: up to 3 hours, 3D recording
- Compact, lightweight, and portable
- ARRIRAW certified product
- Records embedded audio, time codes, and ancillary data
- Variable frame rate, recording of complete data
- Analog audio and LTC input
- 4:4:4 Dual Link, 4:2:2 Single Link (2 channels) / 3D (4:2:2 Single Link x2), 3G-SDI

Easy Operation

- 3.5-inch LCD screen for previewing
- 5 seconds from startup to recording
- Hot-swappable SSD pack
- Playlists

Reliable

- Warning/alarm for low SSD space and battery level
- Parity On/Off
- Solid construction; impact- and noise-resistant

Support and Expandability

- DPX, BWF file formats supported
- ARRIRAW T-Link certified
- User LUTs supported
- Fitted with V-mount battery adapter
- Camera mounting kit (optional)

First cinematic ARRIRAW shooting in Japan, with the HR-7502-A supporting production

This summer's hot movie in Japan:
『The Kirishima Thing』

Shot on an ARRI ALEXA Plus camera recording to an Astrodesign HR-7502-A, this was Japan's first ARRIRAW movie. According to cinematographer Ryuto Kondo, the team initially hesitated to shoot in ARRIRAW, facing the uncertainty of having to rely on technical support from a manufacturer outside of Japan. But when they learned about HR-7502-A support for ARRIRAW at the Busan International Film Festival in October 2011, they decided to go ahead with plans to shoot the next month.
[Cast and Crew Highlights (Video α Magazine, May 2012)]

◎Starring: Ryunosuke Kamiki, Ai Hashimoto, Suzuka Ohgo, and others
◎Director: Daihachi Yoshida ◎Writer: Ryo Asai
◎Production: Nippon Television Network
◎Distribution: Showgate [Screening in August 2012]

Three Unique Loudness Monitoring in Control Solutions for

Audio Monitor ＜AM-3803/AM-3805＞

*AM-3803 : Includes woofer

Full-featured audio monitors with loudness meter functionality

Audio monitors for separation of audio signals embedded in HD or SD SDI video signals and simultaneous monitoring of up to two channels through headphones or built-in speakers.
Full-featured display functions of the LCD screen include a variety of loudness meters (VU, peak, Lissajous waveforms, and spectrum analyzers) and visual monitoring of source signals.

Features

- Eight AES/EBU inputs and outputs (16 channels)
- Balanced analog input and output (8 channels)
- Built-in stereo speakers (for L/R audio)
- Stereo headphone jack (6.3 mm)
- 5.1 channel downmixing
  ISO/IEC 13818-7:1997 (E) compliant
  ARIB STD-B21 compliant
- Volume (L/R linked) and L/R balance dials

Loudness Meters

- ARIB TR-B32 (ITU-R BS.1770) compliant loudness meters
- Loudness measurement
  Repeated measurement with overwriting, measurement during backward playback
  In/Out points and a variety of triggers can be used
  Simple audio mode configuration, variety of logging

Clear, easy-to-read LCD panels

Many peak and loudness display options: status display, audio level bars, VU meters, spectrum analyzers, Lissajous waveforms, and more

GPIO

- Switching of audio channels and loading of preset data via GPI input
- Alarm output and control of remote devices via GPI output
- Can be connected to a dedicated remote unit (optional)
- Remote control via RS-422
- Time input connector ※specifications available on request

Monitoring Applet (Dedicated GUI)

Connecting the unit to a computer via Ethernet enables advanced operations, loudness checking, log output, and other practical features via a browser (with JavaScript enabled).

Loudness Level Controller ＜AC-3804＞

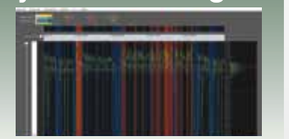
Control the signal loudness to match a target level

Measures the loudness of audio signals in source SDI signals (or in signals supplied via AES) and matches the level to a target level before output via SDI. Features a color LCD for exceptionally clear display of loudness levels and other information, including any alarms.

Features

- HD/SD-SDI signal input supported
- Broad video format support
- HD-SDI specifications: Conforms to SMPTE 292M and BTA S-004B specifications (1.485 Gbps SDI input)
- SD-SDI specifications: Compliant with SMPTE 259M specifications (270 Mbps SDI input)
- Measures and loudness based on ARIB TR-B32 (ITU-R, BS.1770) algorithms to control volume
- Remote control of loudness measurement (start/stop), switching audio modes, and other operations
- Fits in a 1U half-rack space, compatible with 12V DC power sources

Loudness Analysis EDIUS Plug-in ＜SP-3800＞



EDIUS 6 Plug-in Now Available

Analyzes audio sequences in EDIUS and quickly displays the results to meet program production needs. Using the Astro Loudness Exporter plug-in with the Astro Loudness Analyzer display utility enables efficient loudness analysis and confirmation of results.

Trial Download Page (Japanese)
http://www.astrodesign.co.jp/japanese/product/sp-3800

HDCP Compliant

Full-featured Digital Matrix Switcher

Media Integrator <MI-2100>

"Our goal: an intuitive user interface"

Ryosuke Tsuchiya, Astrodesign UI Manager

The centerpiece of this unit is the generous 8.4-inch touch-panel monitor, which enables intuitive and accurate switching as you view a preview of the source video. We also took advantage of the touch-panel to make detailed settings intuitive to adjust, so you spend less time putting systems together and maintaining them.

▲Switching while previewing sources

▲Intuitive settings adjustment, thanks to a touch-panel display

▲Adjusting source video is straightforward

MI-2100

Video and audio switching is just the start—well suited for monitoring large-scale signage.

The MI-2100 is an HDCP-compliant digital matrix switcher incorporating a scan converter that can also process analog audio and video signals. In all, 68 channels of input and output can be controlled. The touch-panel LCD on front enables previewing and intuitive operations with source video. Enlargement and quad display are also available as options.

Deployment Advantages

1.Streamlines installation and adjustment

(1) Preview sources on the touch-panel display

With an efficient touch-panel interface, the unit enables checking source video when adjusting source video, or source previewing before monitors are set up, eliminating the need for other preview monitors or adjustment computers.

(2) Plentiful test patterns

Built-in test patterns make it easy to identify any problems that may occur along the transmission channel and to check connections with other devices.

(3) EDID emulation

EDIDs of monitors for which display has been checked can be emulated, minimizing connection issues.

(4) No need to configure output timing

Plug-and-play functionality enables auto-configuration of optimal display timings.

2.Significantly reduces need for other peripherals

Systems with conventional digital switches require peripherals such as interface converters, frequency shifters, or signal converters to ensure compatibility with the switch interfaces. The MI-2100 significantly reduces the need for installation space, rack wiring, and ongoing electricity consumption.

3.Streamlines maintenance

(1) Built-in clock

Checking the system in routine maintenance is easier and more accurate, thanks to time information in the operating logs.

(2) File-based management of operating parameters

Operating parameters can be saved or configured via Ethernet or on USB flash drives

4.Enables flexible system construction

(1) Remote interfaces: Ethernet, RS-232C/422, parallel remote port

(2) External clock interface

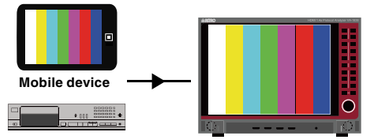
A master sync signal (BB, 1080i @59.94/60) can be supplied to control output video syncing.

Available Now!
Real-time Analysis Solutions for DisplayPort, MHL, and HDMI

DisplayPort Protocol Analyzer
< VA-1835 >
MHL Protocol Analyzer
< VA-1836 >
300MHz HDMI Protocol Analyzer
< VA-1838 >

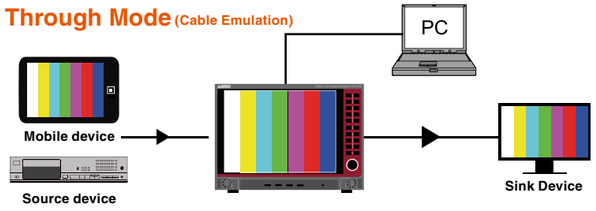
VA-1836

Receiver Mode (Sink Emulation)



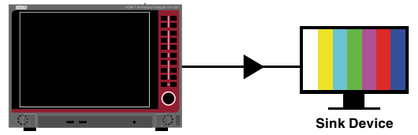
Emulation of televisions or other sink devices based on EDID settings, enabling protocol analysis and measurement of video timing.

Through Mode (Cable Emulation)



Protocol analysis through emulated cable operation. Direct communication between a source device (such as a mobile device) and a sink device can be triggered and a log recorded.

Generate Mode (Source Emulation)



Protocol analysis through emulated source device operation. Generates standard formats signals as a convenient signal generator. Can also be used as an HDMI (300MHz) signal generator. (VA-1838 only.)

VA-1835・VA-1836・VA-1838

In development of transmitters with interfaces such as MHL, DisplayPort, and HDMI (300MHz), these units can analyze the protocol layer. Featuring a 12-inch LCD panel and built-in speakers, displays picture, analyzes, audio, protocols, and video timing in real time. Additionally, in Generate mode (signal transmission), it can check sink device reception and transmission lines.

Main Functions

Analysis (measurement)
Checks video timing of MHL, DisplayPort, or HDMI (300MHz), measures packets, and compares the values to specifications to find any discrepancies.

Reception (monitoring)
The units can receive MHL, DisplayPort, or HDMI (300MHz) signals.

Pass-through operation
Pass-through of input and output enables the units to analyze direct communication between source and sink devices.

Emulation
EDID data can be edited to emulate the performance of a variety of other monitors.

Video/audio monitoring
12-inch LCD monitor can be used to check 8, 10, and 12-bit MHL, DisplayPort, or HDMI (300MHz) video. PCM audio can easily be monitored through the built-in speakers.

Programmed operation
Data used in monitor emulation can be assigned to specific programs. Recalling the programs later makes it easy to switch to other monitor performance characteristics as needed. Out of many programs, the ones most often used can be grouped for added convenience.

Data storage
Analysis logs, emulation settings, and other data can be saved to USB flash drives.

Log triggering
Triggers can be configured to collect analysis data, and sending and receiving of control line commands can be checked.

MHL Defined
Short for Mobile High-Definition Link, MHL was developed by Silicon Image as a high-speed video transfer interface for mobile devices. By connecting smartphones or other mobile devices to televisions or other display devices via MHL, users can view smartphone videos or mobile device screens on the larger screens in full HD. MHL highlights are as follows. ◎Transfer 1080p uncompressed video and 7.1 channel digital audio ◎Control playback of the mobile device from a TV remote control ◎Charge mobile devices ◎Five signal lines ◎Uses existing connectors ◎Supports content protection (HDCP)

8K/4K UHDTV (Ultra High Definition Television) / Video Products

Welcome to next-generation video technology. 8K UHDTV unleashes immersive video with tremendous impact.
Astrodesign has pioneered UHDTV development from the start, and many products in our diverse UHDTV line are in use today.

VP-8407
UHDTV Color Grading Processor

Real-time color processing and correction

UHDTV color grading is just the start. This unit offers highly flexible outline correction, image sensor flaw correction, geometric distortion correction, chromatic aberration correction, and other adjustment, all in real time. For recorded UHDTV material or live feeds alike, a spectrum of image correction and enhancement is at your command to make video content more engaging.
Besides UHDTV output, the unit can also extract and down-convert to 4K (via 3G-SDI) and HD (via HD-SDI) so that grading can be checked. Output for a waveform monitor is also supported.

SR-8422
UHDTV SSD Recorder

Transfer rates of up to 6 GB/s

For UHDTV playback and recording.
In both applications, use of uncompressed material ensures no loss of image quality. The choice of SSD as the storage media enables this high transfer rate and excellent random access performance, in addition to highlight editing or slow-motion playback at any speed during recording.
Used with UHDTV cameras or switchers, the unit is a powerful ally in UHDTV production of live sports events.

HR-7512-A
8K/4K SSD Recorder

Recording/playback of up to 16 TB of uncompressed material

4K uncompressed SSD recorder and playback unit offering optional 8K support.

＜Features＞

- Stores up to 6.6 hours of 4K (YCBCR 4:2:2/30p) material in a generous 16 TB of capacity
- Can also record 1.6 hours of uncompressed 8K (DG-SHV/60p) material
- A single-unit recording solution for 4K 3D stereo (L+R) material
- Choose from HD-SDI or DVI interfaces when ordering
- Easy controls for looped or reverse playback
- Downconverts output to HD (YCBCR 4:2:2/60i) for monitoring
- Read/write video to computers via eSATA
- Compact (2U), and can be battery powered (24V DC)
- 8K (RGB 4:4:4/60p) recording supported when four units are synced

SC-8202
UHDTV Extracting Downconverter

Intuitive, touch-panel based trimming and extraction of UHDTV material to HD format.

VP-8404
UHDTV Camera Image Processor

Adjusts pixel-shifted UHDTV camera signals by correcting geometric distortion of B and R signals and correcting outlines by adding high-level components to G signals.

VP-8405
Full-Resolution UHDTV Downconverter

Downconverts full-resolution UHDTV RGB signals to 3840x2160/60p YCBCR 4:2:2 signals for use as source signals.

HB-7513 NEW
Real-time Debayerer (Cinema EOS C500-compatible)

Perfect for live 4K RAW from EOS C500

For real-time processing and adjustment of live 4K RAW from Cinema EOS C500.
Consists of a camera control unit and remote control.
Take advantage of cameras normally used in movie, TV, or commercial production in other scenarios.

＜Features＞

- Input: Dual 3G-SDI ports for C500 4K RAW
- Output: Four 3G-SDI or four HD-SDI Dual Link debayered 4K RAW
- Debayered, downconverted HD output compatible with 3G-SDI (59.94p) or HD-SDI (59.94i)

DM-3409 NEW
9.6-inch 4K LCD Monitor

Ideal as a 4K viewer for reviewing material at the production site. Small and Light

A compact, lightweight LCD monitor offering 4K resolution (3840x2160) on a 9.6-inch screen.

＜Features＞

- Input: Four 3G-SDI (up to 60p)
- Adjustable contrast (50% to 150%), brightness (-50% to +50%), and color temperature (9300/6500/5500 K)
- Frames at 24/50 Hz are shown repeatedly for 60 Hz display.
- Adjustable backlight (1%–100%; max. brightness: approx. 400 cd/m²)

[UHDTV products shown here were jointly developed by Astrodesign and NHK.]

Japan Broadcasting Corporation (NHK) has conducted R&D on the UHDTV television format, which is called Super Hi-Vision in Japan. 8K UHDTV boasts a resolution of 7680x4320—16 times more pixels than the current HDTV format. Viewers experience this massive resolution at 60 fps in progressive video. The feeling of immersion is impressive, and objects have a much more natural sense of depth.

Since this advanced video format was first introduced, Astrodesign has collaborated with NHK to develop a range of UHDTV products. Intensive R&D is currently underway targeting test broadcasts in 2016, which has led to a steady stream of the new equipment and technologies needed to bring viewers this exceptional content.

4K2K Video Products

4K offers four times the resolution of Full HD. High-resolution 4K technologies from Astrodesign convey natural depth and impressive visual beauty, bringing greater realism to a range of applications.

DM-3432 · DM-3410-A· DM-3412
4K LCD Monitor Series

32-inch DM-3432　56-inch DM-3410-A

60-inch DM-3412

A line serving many applications: 32, 56, and 60-inch monitors

Impressive detail and outstanding color at a resolution four times greater than HD brings a new level of realism to video.

＜Features＞

- Direct image quality adjustment, channel switching, source signal checking, and other operations from the front.
- Compensates for color shift due to discrepancies in backlight chroma by applying a 3D LUT. R, G, and B are combined to compensate for color shift that would be impossible to correct with each primary color separately, producing accurate colors. Gamut specifications can be chosen to suit the application: Rec. 709/SMPTE-C/EBU/D-Cine/CRT/native (no gamut restrictions)
- All LCD panels are affected by uneven brightness, so brightness inevitably varies across the screen. Astrodesign monitors compensate for this uneven panel brightness to ensure uniform brightness across the screen.
- Within the panel's native resolution of 3840x2160, source signals at 4K (4096x2160) can be centered, scaled, or aligned left or right.
- This enlargement functionality is useful in checking source details.
- Supports 24 fps input
- Supports asynchronous input from up to four HD sources. The monitor also compensates input channel phase difference to ±0.5 frame.

SD-7067 NEW
4K HDMI/SDI to HDMI/SDI/DP Converter

Converts four channels of SDI signals (3G/Dual Link/HD-SDI) and HDMI into four channels of SDI signals or two channels of DisplayPort output.

＜Features＞

- HDMI signal output (optional)
- Color correction (GBR gain, offset, contrast/brightness, color temperature), marker display, audio out (via headphones), enlarged display.
- Supports sync input (draws ±0.5 frame)
- Output clock and format can be selected via source signals or sampling frequency (for SDI output only)
- Display of internal test patterns (color bars, grayscale)

SD-7068 NEW
4K HD/3G-SDI to DP Converter

Compatible with Eizo Nanao DuraVision FDH3601 36-inch 4K monitors.

Converts HD-SDI or 3G-SDI to DisplayPort.

＜Features＞

- Output format: 4096x2160 60p
- Auto detection of source format
- Also accepts asynchronous SDI input of areas A–D (draws ±0.5 frame)
- Color space and depth can be manually set or auto-configured based on payload
- Display of internal test patterns

HC-7504
4K JPEG 2000 Codec Unit

Compact JPEG 2000 codec unit

Compresses potentially heavy 4K/60p material, enabling recording on the HR-7502-A 2K SSD recorder.

＜Features＞

- Versatile format support
  Many formats are supported, including resolutions up to 4096x2160, various frame rates (24p/30p/60p), and several color spaces and depths.
  Serves as both an encoder and decoder, enabling encoded recording in 4K shooting and then decoded playback later, all in one unit.
- Supports HD-SDI, Dual Link HD-SDI, and 3G-SDI signals. Used with the HR-7502-A 2K SSD recorder, this unit records up to three hours of 4K material.

AH-4410-A · AH-4413
4K Camera

Real-time 4K video output

QFHD (3840x2160) camera system, for shooting at high-resolution.

＜Features＞

- High-resolution 8.9-megapixel CMOS sensor
- Processor unit produces 4K (3840x2160) 1080/59.94p material in real time
- Up to 100 m between the head and processor unit
- Genlock functionality (with HD-SDI input)
- Dedicated controller
- AH-4410-A: F-mount AH-4413: Micro Four Thirds

WM-3207
4K Waveform Monitor

- Displays up to four simultaneous 3G-SDI/HD-SDI (Single/Dual Link) input channels
- Easy monitoring of 4K and QFHD video signals (4096x2160 and 3840x2160) on a 17 screen
- Simultaneous display of picture, waveform, vectorscope, and audio level information from four channels
- Customizable layout of each screen displayed

SD-8203
4K HD-SDI to DVI Converter

- Converts synchronized HD-SDI video signals (from four or eight channels) to Dual Link DVI-D (four channels)
- Auto detection of source format
- 3840x2160 and 4096x2160 supported

VT-7003 NEW
4K Video

4K uncompressed video shot in the Ogasawara (Bonin) Islands, a subtropical paradise in the Pacific designated as a Unesco World Heritage Site.
Can be used as actual video material to demonstrate and evaluate 4K equipment.

For details on 4K equipment development and production, see ➡ P14

HD/2K Production Studio / OB Van Products

HDTV peripheral development environments for studios or on-location sites, broadcast vans, and HDTV production sites.

VC-7063・VC-7063-1
Stereo Composer (VC-7063-1: with 3D Keyer)

Combines 3D compositing, separation, format/interface conversion, and many other features to meet needs in sites from shooting and editing environments to master control rooms

3D composer compatible with 3G/HD-SDI and HDMI specifications. Two source signals can be combined into a single 3D signal for output in Side by Side format or others. Separation of composite images into left- and right-eye output is also possible, and the unit offers 3G/HD SDI–HDMI interface and format conversion.

＜Features＞

- Many conversion formats
  Side by Side, Top and Bottom, Line by Line, Field Sequential, Checker, Frame Packing (HDMI only), Anaglyph, Side by Side copy (VC-7063-1), and more
- Interface conversion
  Interface conversion between 3G/HD-SDI and HDMI
- Format conversion
  Upconverts 720 signals to 1080 or vice versa
- Image alignment
  Source images can be moved up, down, left, or right
- Mirroring
  Independent vertical or horizontal flipping of left- and right-eye source images
- Color correction
  Independent brightness, contrast, chroma, and offset/gain/gamma adjustment (for R, G, and B) of left- and right-eye source images
- Frame syncing
  Synchronization with an external signal such as a reference signal (tri-level or BB), or an internal clock signal
- Scaling
  Output video can be scaled to a desired size
- Marker display
  Markers can be displayed for left- and right-eye source images separately
- Audio re-embedding (VC-7063 only)
  Embedded SDI or HDMI audio signals can be replaced with audio in AES input, and each signal is sent out through the respective interface
- Audio delay (VC-7063 only)
  Audio and video output timing can be adjusted as needed
- Alarm output port (VC-7063-1 only)
  Supports alarm control via GPO
- 3D keyer (VC-7063-1 only)
  Fill/key signals in a pass-through (2D) state from the master control room can be forced into side-by-side display (3D) in case of emergency news or natural disaster updates that occur during 3D broadcasts.

HR-7502-A
2K Uncompressed SSD Recorder

Meets many production and recording needs. Compatibility and outstanding usability in a light, compact unit.
With highly reliable SSD technology, superb uncompressed image quality can be maintained in a smaller, lighter, more intuitive, and much more affordable system. Meets needs in a range of settings from digital cinema to TV and commercial production to research or industrial labs that require superior video quality.

＜Features＞

- Long recording time: up to 3 hours
- ARRIRAW T-Link certified, ready for 3D recording
- Records embedded audio, time codes, and ancillary data
- Variable frame rate, recording of complete data
- Analog audio and LTC input
- 4:4:4 Dual Link, 4:2:2 Single Link (2 channels), 3D (4:2:2 Single Link x2), 3G-SDI

IM-1503
File Transfer Station

Maintains high quality in rapid data transfer from the SSD pack to an HDD, LTO tape drive, file server (via Gigabit Ethernet), or other device. Native support for DPX and TIFF images and BWF audio files, and optional support for other media and file formats.

SG-7811
3G-SDI Compatible HDTV/SDTV Sync Generator

Compact (1U half-size), DC input

A sync signal generator compatible with 3G-SDI specifications.

＜Features＞

- Generates tri-level or black burst sync signals for three channels (two outputs each)
- Can produce frame-synced tri-level sync output for HDTV use, BB output for SDTV, signals with 10-field ID (also used for reference BB output) for 59.94i/24p syncing, or 3G-SDI signal output
- Genlock
- In external reference mode, enables independent phase adjustment of three channels of output (scope of adjustment: within 1 frame)
- Two outputs per channel for sync generated; output phase adjustment supported
- Embedded audio supported—audio on/off and pattern-based amplitude/frequency adjustment for each channel (no audio output when 1280x720p (30/29.79/25/24/23.94) is selected)
- Time code superimposition, on/off in ancillary region (no time code output when 1280x720p (60/59.94/50) is selected)
- User patterns can be updated via USB

SD-1655A
3G-SDI Compatible Repeater

Extends or splits 3G/HD-SDI connections to the maximum 100 m length

＜Features＞

- SDI Lock status LED
- Extends 3G/HD-SDI connections to up to 100 m, SD-SDI up to 300 m (5C-FB equivalent)
- Extremely compact, 12V DC input

SD-1670・SD-1671
3G-SDI/Dual Link SDI Converter

Converts 3G-SDI to Dual Link SDI SD-1670
Converts Dual Link SDI to 3G-SDI SD-1671

Converts between 3G-SDI and Dual Link SDI

＜Features＞

- 3G-SDI (SMPTE 425M compliant)
- Supports Dual Link SDI (SMPTE 372M compliant)
- Two Dual Link or Single Link sources can be selected
- Can be manually configured to support signals without a payload ID
- Compact, 12V DC input

Playout, Studio Products: Waveform Monitors, Rasterizers

Rely on Astrodesign products in many applications, from playout monitoring in a range of troubleshooting modes to checking commercial subtitles leveraging the full array of features needed in subtitle production and monitoring.

WM-3207/HW-7069
Multi-waveform Studio Monitor (17-inch)/Multi-rasterizer

New concept in studio monitoring

Broadcast studios are often crowded with picture monitors, UMDs, and a waveform monitor. For a neater arrangement, Astrodesign combines these systems into a single unit.
Deployment of an Astrodesign system saves space around the control board, while the generous 17-inch LCD provides a better view for checking. By supplying signals from the "headless" version of this product (HW-7069) to a master monitor, engineers can check images with the same color reproduction as actual broadcasts, supporting camera adjustment.

＜Features＞

- Display video feeds and waveforms for up to four channels on a single screen
  - Use of a single monitor eliminates inherent color discrepancies among multiple monitors, streamlining camera color adjustment
  - Fewer pieces of equipment to bring on location, simplified setup
  - Consolidation of four waveform monitors in a single unit offers excellent cost-performance
- Linked to CCUs and switches
  - Can be remotely controlled, in conjunction with CCUs and switches
  - Saves space by combining camera iris display, source signal identification, and tallies on the same screen
- Enables 3D and 4K video monitoring
  - Enables monitoring of up to two channels of 3D video, and supports adjustment of cameras on rigs
  - Can also be used as a waveform monitor for 4K images, thanks to support for four channels of Dual Link input

Waveform Monitors

6-inch monitor WM-3014

8-inch 3D-ready 3G-SDI monitor WM-3209/B/L

15-inch monitor WM-3215/L

All needed features, distilled into compact monitors

＜Features＞

- Waveform display
  GBRY parade display, enlarged waveforms, synthesized composite display, and simultaneous display of two waveforms.
- Vectorscope display
  Scans the entire image or selected areas for differences in color; simultaneous display of two signals.
- Ancillary display
  Audio control packets can be checked, as can time codes, subtitles, broadcaster control codes, and other data.
- Status display
  Source signal status can be displayed. For Dual Link input, Link A and B data can be displayed together.
- Audio level meter display
- Audio vector display
- Multi-layout
  Multiple viewing modes can be combined on a single screen.
- Out-of-phase display
  Phase of source and sync signals can be compared, and the differences is shown visually in numerical values or 2D coordinate display of delay time, lines, or samples.
- Y-difference display
  Clearly discernible convergence point in 3D video monitoring.
- Parallax marker
  A parallax marker in 3D video monitoring indicates the extent of parallax in various units: pixels, %, cm, and in.
- Saving stills
  Freeze playback to save still images to internal memory. Comparing source video to the stills makes adjustment easier.
- Anaglyph display
  Source video can be viewed in 3D by wearing anaglyph glasses in 3D video monitoring.
- Wipe
  Using a wipe display effect in 3D video monitoring makes it easier to check for horizontal or vertical misalignment or color discrepancies.

Professional LCD Monitors

Astrodesign monitors are in wide use at broadcasters and production studios.Choose from a full line—from compact yet high-quality 5-inch monitors to large 17-inch models, in 16:9 or 4:3 formats, and with features such as UMD and basic waveforms.

16:9 Widescreen, Small and Light Professional LCD Monitors

＜Features＞

- Source video formats : 21 HDTV formats, two SDTV formats
- Source signals : Two HD/SD-SDI, one analog/composite
- Exceptional brightness, high contrast, and a wide, 170° viewing angle
- Brightness, contrast, and chroma adjustment; marker, UMD, and basic waveform (Y) and vectorscope display

DM-3105
5-inch Widescreen LCD Monitor

5-inch screen, HD/SD-SDI x2, composite x1
DC battery power (optional)

Programmable Signal Generators, Automatic Testing Systems, Protocol Analyzers

Essential to the viewing experience is a high-definition display, but this alone is not enough. Picture quality depends on superior equipment generating the signal. Astrodesign is a pioneer in this field, where we support ongoing R&D and production of digital AV equipment.

Programmable Video Signal Generators

VG-870B · VG-871B VG-873 · VG-874
300MHz HDMI-compatible models

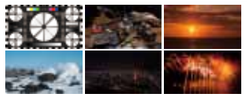
Choose from several standards-compliant interface modules

＜Features＞

- 300MHz HDMI-compliant (VG-873/874)
- DisplayPort/eDP, V-by-One HS, HDMI, 3G-SDI, and more
- 4K 4:2:0 option
- Full HD frame rate x4 (240Hz)
- Full HD frame rate x2 (120Hz)
- Uncompressed 10-bit playback

<Compatible interface units>
<PC Analog Unit> VM-1811
BNC, D-sub 15-pin, DVI Note: 10-bit RGB output for signals other than DVI
<TV Encoder Unit> VM-1812
BNC, D-sub 15-pin, D-terminal, S-Video, VBS, SCART x2, audio L/R
<DVI Unit> VM-1814
DVI x2 (Single/Dual Link), up to 16-bit/330MHz output
<LVDS Unit> VM-1815
Four LVDS channels, up to 16-bit/340MHz output
<Parallel Unit> VM-1816
Two LVDS channels, up to 16-bit/200MHz output
<DisplayPort Unit> VM-1820A
DisplayPort 1.1 x2, audio input (coax)
<SDI Unit> VM-1821
3G-SDI x4, HD-SDI x4 (Dual Link x2), SD-SDI x4
<HDMI Unit> VM-1822
HDMI x2, audio input (coax, optional I2S)
<[4K] 4K unit> VM-1824
iTMDS x2 (Dual Link), digital output only
<[4K] 4K unit> VM-1824-A
iTMDS x4 (Single Link), digital output only
<[4K] V-by-One HS unit> VM-1825
Two channels (up to 4 lanes each) Note: MDR 26-pin connector
<[4K] DisplayPort/eDP unit> VM-1826
DisplayPort 1.1a x2, T-CON control signal, four power supply outputs, external power supply

VT-7004 NEW
4K Still Picture Library



Uncompressed 8, 10, and 12-bit 4K images (VG-870 option)

This option is available exclusively for VG-870 signal generators.Purchasing this license option with a signal generator enables display of several uncompressed 4K images and patterns (such as 4K monoscopes) that are ideal in testing 4K monitors or panels.

＜Features＞

- Includes twenty natural scenes and three 4K test patterns (two monoscopes and a circular zone plate)
- New 4K output formats: DCI, DCI 16:9, and QFHD
- 8, 10, and 12-bit color depth options in stills (4K test patterns: 8-bit)
- High-quality 4K natural scenes for evaluation of test criteria such as resolution, gradation, texture, color, and solidity.
- Easy operation by calling images number stored on a CF card, in a format compatible with the signal generator (VGD format)

VG-884
Production line-oriented Digital/Analog Signal Generator

HDMI/DisplayPort-compatible

Broad support, from analog to the latest digital interfaces.

＜Features＞

- Ideal in computer monitor or projector manufacturing
- HDMI x2, DisplayPort x2, VGA, D-terminal, YCBCR, VBS, Y/C, audio L/R
- 3D HDMI support (optional)
- Includes HDMI and DisplayPort protocol-checking patterns, in addition to typical patterns. Checks CEC and HDCP on all ports at once. Many other time saving features also available, for better productivity.
- Operation can be automated not only via the remote control but also by computers or command transmission
- Automatic user updates via USB flash drive

Automatic Testing System

VA-1833
Auto testing system for AV AMP

Automates production of AV AMP, HDMI devices

HDMI repeater analyzer equipped with 12 HDMI outputs and 3 inputs. Conforms to recent HDMI specifications, enabling 4K/30p support.
Simplifies testing of the many HDMI interfaces on AV AMP, as well as testing of a variety of other functions. Reliable pass/fail results. Save and manage measurement data via computer. Automate production and enjoy greater productivity.

＜Features＞

- Tests AV AMP, with up to 12 HDMI output signals and 3 input signals (customizable I/O quantities and supported signals).
- Tests compliance with latest HDMI specifications, supports a variety of parameters.
- Analyzes RGB bit loss, auto detection of Deep Color.
- Auto testing: compatible with DSD, HBR (optional) and L-PCM audio. Output of L-PCM level and frequency, auto detection supported.
- Can test CEC, EDID, and DDC.
- For HDCP, each interface can be tested separately. Much faster initial HDCP authorization checking for each interface on InstaPort-compatible AV AMP.
- User-programmable batch testing, result display (pass or fail), product data entry, and data management.

Protocol Analyzers

VA-1835
DisplayPort Protocol Analyzer
VA-1836
MHL Protocol Analyzer
VA-1838
300MHz HDMI Protocol Analyzer
VA-1831
165MHz HDMI Protocol Analyzer

<VA-1835>
Ideal for devices that send and receive via DisplayPort. Real-time protocol analysis.
Actual video can be checked on the LCD monitor and speakers.
Effective in software debugging and testing connections on the hardware level.
<VA-1836>
The last word in MHL device development: one unit that fulfills three roles. Real-time data analysis in three modes.
<VA-1838 (300MHz HDMI)>
<VA-1831 (165MHz HDMI)>
For testing and measurement of HDMI functionality. Ready for 3D and ARC testing as well as HDCP/CEC/EDID analysis. Compatible with 4K signal formats (VA-1838 only).

＜Features＞

- Receiver mode (sink emulation)
  Emulates televisions, for analysis of protocols and device operation.
  Enables a range of protocol and video timing analysis.
  EDIDs can be duplicated and edited to emulate a variety of televisions and other sink devices.
- Through mode (cable emulation)
  Emulates pass-through operation, for analysis of protocols and device operation.
  For checking direct communication between a mobile and sink device. Logging supported.
- Generator mode (source emulation)
  Generates standards-compliant signals.
  Can also be used as an HDMI 4K signal generator (VA-1838 only).
  Satisfies growing needs in evaluation of uncompressed 4K devices

Corporate Profile

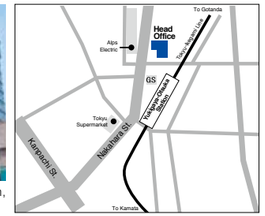
Company Name	ASTRODESIGN Incorporated
Established	February 15, 1977
Capital	72 million yen
President and CEO	Shigeaki Suzuki
Officers	Senior Vice President: Minoru Hosaka Director: Tsutomu Mihara Auditor: Yoichi Takahashi Executive Officer: Junji Maeda
Employees	155
Business	Drawing on expertise in high-speed digital signal processing, Astrodesign develops, manufactures, and sells imaging and video equipment, software, HDTV studio equipment, digital broadcast equipment, display testing and measurement equipment, in addition to sales of communication, control, and testing modules and systems.

Company History

1977	Established in Tokyo, specializing in design and development of electronic equipment
1979	Developed the world's first programmable video signal generator
1985	Invited to participate in joint HDTV development with NHK
1986	In response to growth, relocated to a new facility in Kawasaki
1987	Kansai office opened in Osaka, serving Western Japan
1990	Capital increased to 72 million yen
1991	Matsuyama R&D Center opened in Matsuyama, Ehime
1993	Kawasaki Technology Center opened in Kawasaki (merged into head office in 2007)
1996	ISO 9001 certified (registration no.: JET-0056)
1998	Tottori R&D Center opened in Tottori
1999	ISO 14001 certified (registration no.: E99-102)
2002	Merger with affiliate NPS, head office relocated in Meguro-ku, Tokyo
2005	UHDTV processor jointly developed with NHK for Expo 2005 in Aichi
2007	Head office relocated in Ota-ku, Tokyo; consolidation of three Tokyo offices
2010	Expanded our 4K product lines (including cameras and recorders) in anticipation of UHDTV market growth
2012	Subsidiary Astrodesign, Inc., established in Santa Clara, California

Head Office

2-minute walk from Yukigaya-Otsuka Station, Tokyu-Ikegami Line



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[Showroom]

Product demonstrations are given at the head office showroom.

[Newsletter Subscriptions]

Informative monthly Astrodesign email newsletter to learn about new or updated products, read about technical terms, and find out about planned trade show events.
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